Kansas State Agricultural College Bulletin

Vol. I SEPTEMBER 15, 1917 No. 17

ANNOUNCEMENT

OF

WINTER SHORT COURSES

IN

AGRICULTURE AND RURAL ENGINEERING

AT THE

KANSAS STATE AGRICULTURAL COLLEGE

JANUARY 7 TO MARCH 2
1918

MANHATTAN, KANSAS
PUBLISHED BY THE COLLEGE

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COMMERCIAL CREAMERY
ROAD BUILDING
SHOP WORK
TRACTION ENGINES

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THE PRIZE-WINNING KANSAS EXHIBIT AT EL PASO, 1916.

Kansas is known throughout the world for its agricultural products. It is not only the leading state in the Union in the production of wheat and alfalfa, but is one of the leading states in the production of corn, and throughout a long growing season produces the finest varieties of many other staple crops. Its sorghums, oats, and many splendid hay crops, including Sudan grass, millet and cowpeas, fitly supplementing its great staple crops, make the plains of Kansas a region unexcelled in crop production.

The International Dry-farming Congress stages each year, under the head of the "International Soil Products Exposition," exhibits of soil products from a score or more of states and provinces of the Middle West and Canada. Kansas products have been represented regularly and were awarded first place in both 1915 and 1916. This picture shows something of the variety, quality and beauty of the Kansas exhibit in 1916 at El Paso. In the production of the crops represented, adequately supplemented by livestock, lie the possibilities of the state for increased prosperity and progress.

Field of Kanred Wheat on the College Farm, July, 1916.

This is a new strain of wheat developed by the Kansas Agricultural Experiment Station, the increase from a single head. In many tests over the western half of the state during the last seven years it has outyielded the best local varieties of wheat an average of over four bushels per acre.

WINTER SHORT COURSES.

THE SHORT COURSES AND THE WAR.

WE ARE ALL ENGAGED in a monstrous war for international justice and individual freedom. It is a serious struggle in which the common right of liberty and the standards of modern democratic civilization are at stake. Each one must do his part faithfully. 'Tis not so far, after all, to the battle front, and the connection is very direct from the foremost trench to the agricultural workers of Kansas. While friends and relatives are taking their chance in the trenches, Kansas farmers, with steady nerve, must do their part.

The Agricultural College is leading the way to improved methods of agricultural production in Kansas. It is ready to help all young men not with the colors to be of the greatest possible service behind the lines. The eight-week winter short courses present an exceptional opportunity for young men of the state to prepare for greater usefulness and patriotic service. Many who have had little or no high-school training and are not prepared to do regular college work, as well as many others who can not be spared from the farms of the state for even one semester (18 weeks) during the year, can arrange to take short-course work dur-

A Pen of Steers.

These steers made a good showing in the cattle-feeding experiment, ending May 30, 1917. They were fed on shelled corn, oil meal, and sweet clover hay.

ing the months of January and February and can be greatly benefited thereby. All short-course work is intensely practical and gives results quickly. Students return to their farms or shops in the spring and apply at once the information and skill acquired during the winter.

THE SHORT COURSE IN AGRICULTURE.

(*The Farmers' Short Course.*)

The faculty and equipment for instruction in agriculture at the Kansas Agricultural College compare favorably with any institution in its line in the country. The faculty is made up of men not only well prepared in the science of agriculture, but with many years of practical farm experience themselves. They are in close touch with actual farm problems of to-day through the management of farms of their own, the carrying out of experiment station projects on the five state experimental farms, embracing more than five thousand acres of Kansas farm land, and extension and coöperative work with farmers all over the state. They are men prepared both by theory and practice to teach the business of farming.

Over one thousand acres of land located within two miles of the Agricultural College are devoted to educational and experimental purposes. Eighty thousand dollars is now available for the purchase of additional land. Young farmers desiring to become better farmers, the best farmers of their respective communities, can not afford to miss the Farmers' Short Course at the Kansas State Agricultural College. The entire plant of the college is available for the use of short-course students—sixteen buildings with classrooms and laboratories equipped for adequate and

systematic instruction; fields of grain and forage crops showing exceptional development; herds of purebred livestock, including a large number of champion animals; a large stock-judging pavilion for class use; a poultry farm of eight acres, with modern equipment and representatives of the leading breeds of poultry found on Kansas farms; a creamery, orchards, greenhouses, silos, and all kinds of modern machinery.

With leaders in the farming business as instructors, and with an equipment intended to stimulate present-day successful farming, the Agricultural College is a source of improved farm practices and is recognized as such far beyond the boundaries of the state of Kansas. Its Farmers' Short Course prepares young men to be farmers who can produce larger crps, raise better livestock, largely eliminate farm wastes, better combat diseases and insects, use gas engines, automobiles and farm power machinery with discretion and economy, and altogether apply such principles to farming as will make it a remunerative business and permit those engaged in it to build convenient, attractive, and happy homes.

The completion of this course requires two terms of eight weeks each though it will be found more than worth while to attend for a single term only.

Scene in the Stock Judging Pavilion at the Close of the Annual Students' Stock Judging Contest

Four Imported Guernsey Heifers and Herd Sire.

These Guernseys were recently purchased by the Agricultural College for foundation stock. The first seven dams of the herd sire made an average record of 810 pounds of butter in one year.

OUTLINE OF THE FARMERS' SHORT COURSE.

FIRST YEAR.

	Hours per week of— Lectures or recitations.	Laboratory or field work.	*Credit hours.*
Required subjects:			
Soil Management	3	2	4
Judging Livestock	1	4	3
Feeding Livestock	2	0	2
Farm Horticulture	2	2	3
Dairying I	2	4	4
Poultry	1	0	1
Total	..	..	17
Elective subjects:			
Grain Crops	3	2	4
Forage Crops	3	2	4
Breeding Livestock	2	0	2
Livestock Sanitation	3	0	3
Gas Engines	1	4	3
Traction Engines	0	4	2
Carpentry I or Blacksmithing I	0	4	2
Farm Field Machinery	0	2	1
Physical Training	0	2	1
Special Lectures	1	0	1

SECOND YEAR.

GROUP I.—AGRICULTURAL ELECTIVES.

(16 credit hours must be taken in this group.)

	Hours per week of— Lectures or recitations.	Laboratory or field work.	*Credit hours.*
Grain Crops	3	2	4
Forage Crops	3	2	4
Breeding Livestock	2	0	2
Livestock Sanitation	3	0	3
Advanced Stock Judging	0	6	3
Farm Management	3	2	4
Dairying II	3	4	5
Fruit Growing	3	4	5
Spraying	1	2	2
Incubation and Brooding	0	6	3
Market Poultry	0	2	1
Bee Culture	2	2	3
Farm Insects	3	0	3
Rural Life	2	0	2

SECOND YEAR.

GROUP II.—ELECTIVES IN RURAL ENGINEERING.

	Hours per week of—		
	Lectures or recitations.	*Laboratory or field work.*	*Credit hours.*
Gas Engines and Automobiles	0	4	2
Gas Engines or Traction Engines	0	4	2
Practical Electricity	2	0	2
Carpentry I or Carpentry II	0	4	2
Blacksmithing I or Blacksmithing II	0	4	2
Power Farming Machinery	0	4	2
Concrete Construction	2	0	2
Concrete Construction Laboratory	0	4	2

EXPLANATION OF THE COURSE.

The required subjects of the first year cover the elements of the chief problems of farming as represented on the average Kansas farm. Besides the required work the student selects at least two and sometimes three or four from the list designated "Elective Subjects." In selecting these electives he chooses work to meet his individual interests and needs. If he is especially interested in crop production he will select Grain Crops and Forage Crops; if he is more interested in livestock, Livestock Breeding and Livestock Sanitation; or, if Carpentry, Blacksmithing or Farm Field Machinery will be of more immediate value to him, he selects these subjects first. Many farmers of to-day are interested in gas engines and not a few in traction engines. Elementary courses are provided in these subjects which prepare young farmers to handle gas engines, automobiles, and farm tractors as efficiently and economically as they handle other phases of farm operations.

Twenty-four credit hours constitute a regular assignment. To complete the first year's work the student must complete the seventeen credit hours of required work and at least seven credit hours from elective sub-

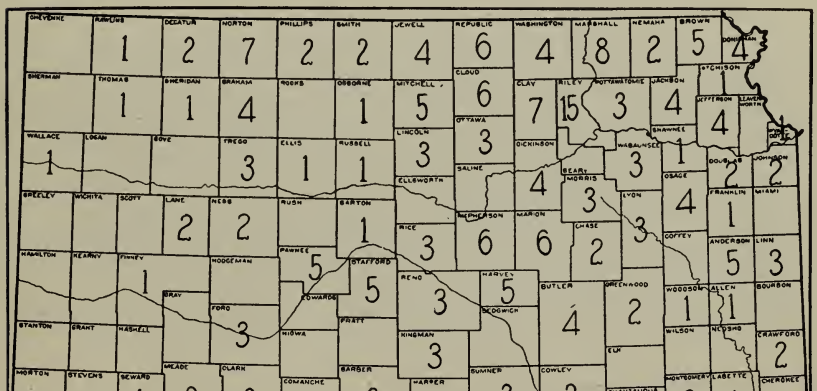
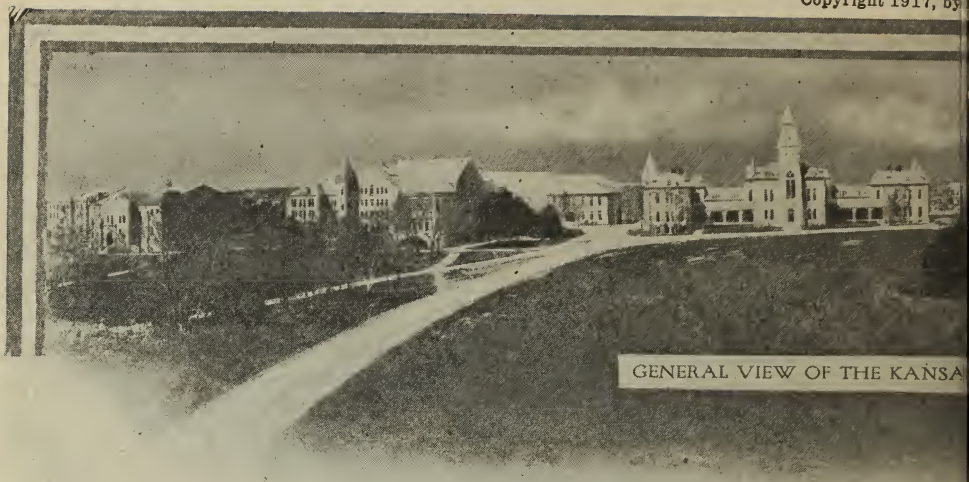


Chart Showing Residence of Farmers' Short Course Students, 1917.



GENERAL VIEW OF THE KANSA

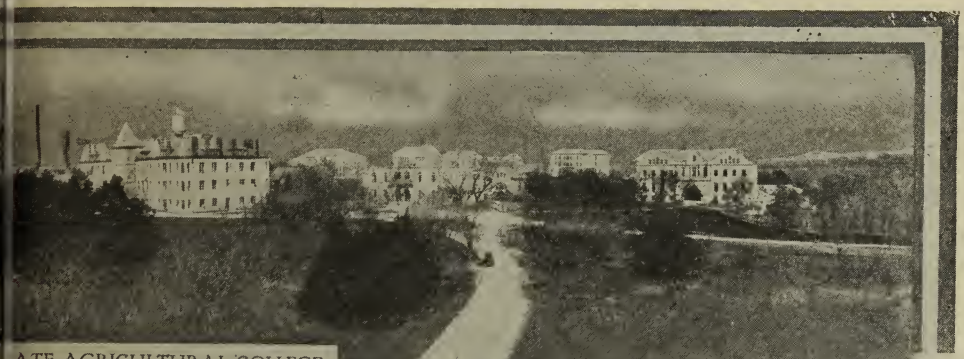
jects. However, as many as nine and in some cases ten credit hours of electives are permitted on the student's regular assignment if he demonstrates that he can carry it and do good work.

Second-year students are not required to take any definite list of agricultural subjects. At least sixteen credit hours, which is two-thirds of their regular work for the year, must be selected from Group I of the

Short Course Enrollment, Winter, 1917.

Farmers' Short Course	228
Commercial Creamery Short Course	14
Traction Engine Short Course	176
Shop Work Short Course	15
Total	433

Holt Feature Film Co.



second year's work. They may select all the rest of the second year's work from this same group if they desire, or they may select it from Group II—subjects in Rural Engineering—or they may select part from Group I and part from Group II. This provides sufficient liberty on the part of the second-year students to allow them to select work that will be most profitable to them.

Short Course students at the Agricultural College have the reputation of being an ambitious and industrious group. Their reports of the benefits derived from the work are the best advertisement of the courses.

Last winter 228 young farmers were enrolled in the Farmers' Short Course, 223 of them being residents of Kansas. Their distribution over the state is shown on the map, p. 7. Since this work is peculiarly adapted to meet the needs of Kansas farmers in the present world crisis the attendance this year should be increased rather than diminished. As much practical work is crowded into eight weeks of time as can possibly be assimilated by the student. No better opportunity can be offered to increase the efficiency of Kansas farmers who can spend the months of January and February away from home than is provided in the Farmers' Short Course.

ADMISSION.

Students over 17 years of age are admitted to the Farmers' Short Course without examination. However, the equivalent of at least a common-school education is quite necessary for successful work and further school training is advantageous. Enrollment day is Monday, January 7, and regular class work begins at 8 a. m., Tuesday, January 8. Students are required to be present at the beginning of the term and will not be admitted after Monday, January 14.

THE COMMERCIAL CREAMERY SHORT COURSE.

To young men in the state desiring to engage in the creamery business as managers, or as butter or cheese makers, or for those who desire to engage in the business of handling market milk or ice cream the State Agricultural College offers an eight-week course of technical training along these lines.

The following outline indicates the nature of the work given and the time each week spent on the different subjects.

OUTLINE OF THE COMMERCIAL CREAMERY SHORT COURSE.

	Hours per week of—		
	Lectures or recitations.	*Laboratory work.*	*Credit hours.*
Creamery Management	2	0	2
Creamery Butter Making	4	8	8
Market Milk	2	0	2
Dairy Bacteriology	2	0	2
Cheese and Ice Cream Making	1	6	4
Judging Dairy Products	0	2	1
Dairying II	3	4	5
Dairy Mechanics and Refrigeration	0	4	2

The requirements and regulations regarding admission are the same for this course as for the Farmers' Short Course.

If interested write for further information.

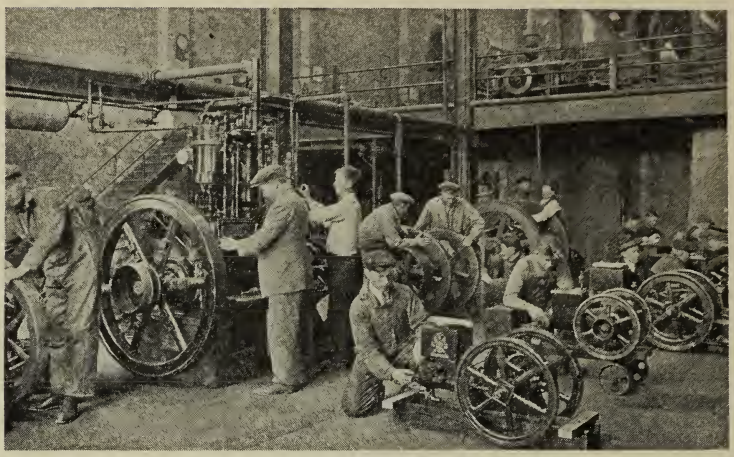
Class in Traction Engines.

Different types of gasoline, kerosene and steam traction engines are studied as to their construction, operation and care.

THE SHORT COURSES IN TRACTION ENGINES AND SHOP WORK.

The most striking progress of the last decade has been the increase in the use of traction engines, motor cars, and power machinery. In fact, the use of such machines has increased much faster than the supply of men skilled in their handling and repair. To provide mechanics to meet this demand the short course in traction engines and the short course in shop work were organized at the Kansas State Agricultural College. The present monstrous world war not only increases the demand for traction-engine operators and mechanics in the trades but makes it an opportunity for young men with mechanical aptitude and ability to better do their part by making the greatest possible preparation for such work. These short courses are not intended to take the place of or to supplement the work done in any of the four-year professional engineering courses but are planned especially for men who want direct, practical and short-cut preparation for the operation of traction engines or for work in the trades as mechanics. The course in traction engines includes instruction in the handling and repair of traction engines. The course in shop work is designed for those who wish to gain a working knowledge of general repair shop practices, and includes instruction in blacksmithing, the foundry, the machine shop, carpentry, and wood turning.

These courses have proved a complete success during the past three years. The steadily increasing enrollment indicates that such courses, open to those who have not the preparation, the time, or the means to pursue one of the regular professional courses in engineering, are filling



A Corner of the Gas Engine Laboratory.

Thirty engines for operation on gasoline, kerosene and other petroleum fuels are provided for the instruction of the students.

a well-defined demand. Many young men who have completed these courses are now handling traction engines on farms or are in the employ of farm machinery concerns as demonstrators, repair men or field experts.

Engineering equipment valued at one-quarter million dollars is available for inspection and use of students pursuing these short courses at the Agricultural College. About 30 different types of gas engines, 12

Class in Blacksmithing.

Forty-seven down-draft forges, a steam hammer, gas furnaces, tire benders, a punch and shear and other necessary tools are available for the teaching of blacksmithing.

steam engines with various valve gears, and 10 to 20 traction engines are available for instruction and practice in engine operation. The shops are equipped with different types of lathes, milling machines, shapers, drills, forges, cupolas, and woodwork machinery.

OUTLINE OF THE TRACTION ENGINE SHORT COURSE.

FIRST YEAR.

	Hours per week of— Lectures or recitations.	Laboratory work.	Credit hours.
Required subjects:			
Gas Engines	1	4	3
Gas Traction Engines I	1	8	5
Power Farming Machinery	0	4	2
Blacksmithing I	0	4	2
Mechanical Drawing I	0	4	2
Machine Shop Work I	0	4	2
Iron and Steel	1	0	1
Special Lectures	1	0	1
Elective subjects:			
Steam Traction Engines I	0	8	4
Foundry Work I	0	4	2
Concrete Construction	2	4	4
Livestock	1	4	3

(A few other electives will also be provided.)

SECOND YEAR.

(This second year's work is provided for students who have completed the first year's work and who wish to gain advanced knowledge and greater skill in the handling and repair of gas engines, traction engines, and automobiles.)

	Hours per week of— Lectures or recitations.	Laboratory work.	Credit hours.
Required subjects:			
Gas Engines and Automobiles	0	8	4
Gas Traction Engines II	0	8	4
Blacksmithing II	0	4	2
Machine Shop II and III	0	8	4
Carburetion and Ignition	4	0	4

Elective subjects:

(Besides the required subjects, additional work is provided in steam traction engines, machine shop work, mechanical drawing, blacksmithing, carpentry, and concrete construction. The student must select at least one of these advanced subjects.)

Class in Machine Shop Work.

The machine shop is equipped with a great variety of lathes, shapers, grinders, milling machines, planers, drill presses and other machine tools required for thorough instruction in machine-shop practice.

Gas Engine and Wood Lathe Assembly Floor.
All patterns, castings, and forgings for these machines are made, and all machine work is done by students in the College shops.

EXPLANATION OF THE COURSE.

This course is intended for traction-engine operators and others who wish to gain a practical working knowledge of stationary and traction steam and gas engines.

The study of gas engines, automobiles, gas traction engines, and steam traction engines includes valve setting, a thorough study of all fundamental parts, repairs, care, operation, and management. Practice is provided with many different makes of stationary and traction engines, including not only laboratory work but road and field operation and testing.

In order to aid the student in making repairs, instruction is given in machine-shop work, blacksmithing, and in the handling of iron and steel. The work in machine shop includes practice in chipping, filing, drilling, babbitting and adjusting bearings, and in making general repairs of tools and machinery. Practice is also given in cutting and fitting pipe and in such operations as soldering, brazing, and belt lacing. In the blacksmith shop exercises are given in drawing, up-setting, bending, twisting, punching, and welding of iron and steel. Practice is also given in hardening and tempering tool steel. The manufacture of iron and steel is explained by means of lectures so that the materials which are so largely used in the construction of machinery may be better understood and more intelligently used.

In order that the student will understand how to make sketches and to read drawings, four hours per week of drafting-room practice is required.

ADMISSION.

Students over seventeen years of age are admitted to the Traction Engine Short Course without examination but they are expected to present evidence of a fair common-school education. Enrollment day is

Monday, January 7. Regular class work begins at 8 a. m., Tuesday, January 8. Students are required to be present at the beginning of the term and will not be admitted after Monday, January 14.

OUTLINE OF THE SHOP WORK SHORT COURSE.

FIRST YEAR.

	Hours per week of— Lectures or recitations.	Laboratory work.	*Credit hours.*
Required subjects:			
Blacksmithing I and II	0	8	4
Foundry Work	0	4	2
Machine Shop Work I, II and III	0	12	6
Carpentry I	0	4	2
Gas Engines	1	4	3
Mechanical Drawing I	0	4	2
Iron and Steel	1	0	1
Special Lectures	1	0	1

Elective subjects:

(The student will select one of the following subjects: Machine Shop Work IV, Carpentry II, Traction Engines, Concrete Construction or Power Farming Machinery.)

SECOND YEAR.

	Hours per week of— Lectures or recitations.	Laboratory work.	*Credit hours.*
Required subjects:			
Blacksmithing III	0	4	2
Foundry Work II	0	4	2
Machine Shop IV and V	0	8	4
Pattern Work	0	4	2
Gas Engines and Automobiles	0	8	4
Mechanical Drawing II	0	4	2

Elective subjects:

(The student will select at least one of the following subjects: Traction Engines, Concrete Construction, Electricity, Machine Shop VI, Blacksmithing IV, Carpentry II or III.

Shop Work Short Course students are urged to bring their own plowshares, cultivator shovels and any other implements or tools needing pointing or repairing. The course leads the student through the doing of actual shop work to the grasp of the fundamental principles of the repair shop or factory.

The requirements and regulations regarding admission are the same for this course as for the Traction Engine Short Course.

THE SHORT COURSE IN ROAD BUILDING.

This course is designed for county engineers and surveyors. Applicants must, therefore, possess a working knowledge of algebra, geometry, trigonometry, and physics. Those who contemplate taking the course should write at once to the Department of Civil and Highway Engineering and ask to be enrolled. Should less than twelve enroll the course can not be given.

OUTLINE OF THE SHORT COURSE IN ROAD BUILDING.

	Hours per week of— Lectures or recitations.	Laboratory work.	*Credit hours.*
Surveying	2	4	4
Highway Engineering	3	0	3
Road Machinery and Materials	0	6	3
Bridge and Culvert Construction	3	4	5
Concrete Construction	2	4	4
Mechanical Drawing I	0	4	2

GENERAL INFORMATION REGARDING WINTER SHORT COURSES.

COLLEGE OPPORTUNITIES.

The opportunities of short-course students can not be enumerated in a brief announcement. In the big gymnasium many indoor games and sports are provided. A swim in the pool and a refreshing shower bath are features of health as well as recreation. The Music Department offers opportunity for training in singing or playing on the instrument of the student's choice. Literary societies are interesting and helpful. Many other departments of the institution will be offering work that will appeal to short-course students. In fact, sixteen weeks or even eight weeks of association with a large group of Kansas young people living in the midst of college opportunities and all interested in preparation for lives of the greatest possible usefulness, is in itself stimulating and worth while to any red-blooded young man in the State.

CERTIFICATES.

On the completion of the two-years work (48 credit hours) of the Farmers' Short Course the student will be issued a certificate in Agriculture. On completion of the eight weeks' work in the Commercial Creamery Short Course a certificate in the Creamery Short Course will be issued providing the student can also show satisfactory evidence of having spent at least six months successfully in actual work in a creamery. (Students without this practical experience may acquire it after completing the course. They will then receive their certificates.) Students satisfactorily completing the 16 weeks of work in the Traction Engine Short Course will be issued a certificate in Traction Engines and those succcessfully completing the 16 weeks work in the Shop Work Short Course will be issued a certificate in Shop Work.

SELF-SUPPORT.

All short courses are primarily practical. They bring the student in contact with actual operations on the farm or in the shop. Besides the classroom work many hours each week are spent in the field, laboratory or shop. Altogether, this leaves the student little time for outside labor. Short-course students are, therefore, advised to come provided with as nearly all the necessary funds for the term as possible.

EXPENSES.

An incidental fee of $3 for the term of eight weeks is charged and a sick benefit fee of fifty cents. Laboratory charges are made to cover cost of materials used and broken. These need not exceed $10 and for most students, especially for students in agriculture, will be about $5. Textbooks and classroom supplies need not cost over $10.

Board and room can be obtained at as reasonable prices in Manhattan as at any other place in this section of the country. Good board can be secured for $4.50 to $5 per week. A good room accommodating two students can be rented for $12 per month. The total expenses for eight weeks need not exceed $80, exclusive of railroad fare.

For further information write to H. J. WATERS, President, Box R, Manhattan, Kansas.

FARM AND HOME WEEK.

KANSAS STATE AGRICULTURAL COLLEGE, 1918, JANUARY 21 TO 26, INCLUSIVE.

Some Features of Interest:

1. Lectures dealing with our part in the world war, by national leaders.

2. Courses, lectures and demonstrations for men and women in agriculture, home economics and rural engineering.

3. Meetings of state associations of horse breeders, beef producers, dairymen, sheep breeders, swine breeders, poultry producers, and the state association for crop improvement.

4. Conferences on rural life and rural organization and leadership of special interest to Patrons of Husbandry, and members of the Farmers' Union, farm bureaus, institutes, other farmers' organizations, the church, and every one dealing with organized country life.

5. Round-up of exhibits by winners in the state-wide boys' and girls' club and contest work; more than $600 in cash premiums.

6. Special programs for boys and girls.

7. Conferences for officers of farm bureaus, county agents, farm and home institutes, and home-makers' clubs.

8. Musical programs by college glee clubs, orchestra, band, and members of the Department of Music.

Many of the programs, exhibits, and demonstrations will be of special value to the short-course students. The week also offers a splendid opportunity for parents to visit sons and daughters in the Agricultural College.

For further information write to H. J. WATERS, President, Box R, Manhattan, Kans.